PARTASHNIKOVA, M.Z.; SHAFRAN, I.G.

"Sulfarsazen" as a complexometric indicator for zinc, cadmium, nickel, and lead. Zhur. anal. khim. 20 no.3:313-319 '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv, Moskva.

BAZHANOVA, L.A.; SHAFRAN, I.G.

Determination of heavy metal impurities in reagents by the reversed dithizonate method. Zav. lab. 31 no.11:1314-1315 '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv.

L 05023-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AT6031662 SOURCE CODE: UR/2674/65/000/027/0207/0214

AUTHOR: Shafran, I. G.; Rozenblyum, V. P.

ORG: none

TITLE: Communication III. Kinetic biamperometric microdetermination of nanogram amounts of molybdenum

SOURCE: Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv. Trudy, no. 27, 1965. Khimicheskiye reaktivy i preparaty (Chemical reagents and preparations), 207-214

TOPIC TAGS: molybdenum, selenic acid, iodine

ABSTRACT: A kinetic biamperometric method of determine nanogram quantities of molybdenum has been developed. This method makes it possible to determine 0.002—0.003 μg of molybdenum with a relative maximum error of 25%, and a mean square deviation of six determinations, equaling 0.0005 μg. The influence of a series of additions on the precision of molybdenum determination by this method had been established. The significant accelerating effect of selenic acid

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L 05013-67
ACC NR: AT6031662

on the reaction of iodine oxidation by hydrogen peroxide was discovered. The determination of small amounts of selenic acid is of interest in the development of a kinetic biamperometric method. The possibilities that this method will significantly increase the sensitivity of determination of a series of other elements are indicated. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 07, 08/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 006/

Card 2/2

SHAFRAN, I.K.

137-1958-2-2774

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 81 (USSR)

AUTHORS: Chekmarev, A.P., Klimenko, V.M., Meleshko, V.I., Chekhranov, V.D., Vorotyntsev, Yu.V., Shafran, I.K.

TITLE: A Study of an 1150-millimeter Blooming Mill (Issledovaniye blyuminga 1150 mm)

PERIODICAL: Tr. In-ta chernoy metallurgii AN UkrSSR 1957, Vol 11, pp 152-174

ABSTRACT: A comprehensive investigation of the performance of an 1150-millimeter blooming mill showed that the actual amount of widening that occurs in the rolling of blooms and slabs is significantly greater than the customary calculations would indicate. This error in computation of the widening led to a faulty distribution of the reduction during each of the rolling passes. Measuring the pressure of the metal on the rolls and the current in the armature of the motor revealed the availability of reserve power, which could be used to increase the reduction in a given pass in the blooming mill. The greatest specific pressure in the rolling of mild and medium-carbon steels was exhibited by killed steel MZ subjected to cold upsetting. Curves of specific power consumption for the rolling

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137-1958-2-2774

A Study of an 1150-millimeter Blooming Mill

operation included here, should be useful in the planning and control of power use in a blooming mill. Time-and-motion studies showed the extent of and reasons for differences in the duration of passes and of the intervening pauses among various operators and made possible recommendations for cutting down production time and down time in blooming-mill operation.

V.D.

1. Rolling mills--Operation

Card 2/2

GARBER, K.S., dotsent; NIKITIN, A.I.; LYAUDIS, B.V.; MALINOVSKIY, B.N., kand. tekhn.nauk; BEL'SKIY, O.I.; VOLKOV, L.G.; KUZNETSOV, M.P.; KUTSENKO, A.D., SOROKIN, A.A.; STAKHURSKIY, A.D.; TRUBITSYN, L.M.; TRUSEYEV, A.I.; SHAFRAN, I.K., inzh.; SHESTAK, P.I.; UL'YANOV, D.P.

Automatic control of converter smelting by means of computers. Stal' 23 no. 7:608-610 Jl '63. (MIRA 16:9)

1. Dneprodzerzhinskiy metallurgicheskiy zavod-vtuz im. M.I. Arsenicheva (for Garger). 2. Institut kibernetiki AN UkrSSR (for Malinovskiy). 3. Zavod im. Dzerzhinskogo (for Shafran).

NEPEGOV, A.A.; BORBOV, A.S.; SHAFRAN, I.E.; CHUVACHKO, A.M.; IVANIN, V.P.; KONYUSHENKO, A.S.

Investigating the regularities of butt shrinkage during the rolling of high shapes. Izv.vys.uchneb.zav.; chern.met. 8 no.8:89-93 '65. (MIRA 18:8)

1. Dneprodzerzhinskiy metallurgicheskiy zavod-vtuz.

SHAFRAN, I.K.

KLIMENKO, V.M.; MELESHKO, V.I.; CHERNANOV, V.D.; PAVLOV, V.L.; VOROTYNTSEV, Yu.V.; BORZUNOV, Ye.M.; NAZARENKO, Kh.N.; SHAFRAN, I.K.

Increasing the output of blooming mills. Trudy Inst.chern.met. AN URSR 11:175-181 '57. (MLRA 10:9)

(Rolling mills)

S/133/61/000/002/004/014
A054/A033

AUTHORS: Medvedev, I.A., Docent, Bel'gol'skiy, B.P., Docent, Tareyko, N.A., Engineer, and Shafran, I.K., Engineer

TITLE: Coordination of Rolling Mill Operations

PERIODICAL: Stal', 1961, No. 2, pp. 135-139

TEXT: It was found from photochronometrical recordings that the output of the two-high reversing blooming mill (1,150) and the tube rolling mill [consisting of two-high reversing blooming (900) and three continuous stands (75)] of the new rolling workshop at the zavod im.Dzherzhinskiy (Plant im. Dzherzhinskiy) fell short of expectations. Lack of coordination in operating the various machines caused breakdowns amounting to 56% of the working time. The entire operation was graphically plotted with the aid of photography and in this way an indication of the metal flow and of the load of the machines in time was obtained (Fig.2). The graph showed that the output of the mill could be increased by supplying various types of billets and

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Coordination of Rolling Mill Operations

slabs. Not only metal from the low-output pusher type furnace should be fed to the 900 mill, but also "transit"-billets and slabs for other workshops of the factory, which do not require heating in the pusher type furnace. In order to ensure the uniform loading of all machines of the unit, the mathematical relationships were determined. Thus, the uniform feed of the two mills - both rolling different products - could be determined by

$$C_1 T_1 + C_2 T_2 = C_1 t_1 + C_2 t_2 \quad (1)$$

where C_1, C_2 - the quantity of products of the first and second into the mill; T_1, T_2 - the time it takes to roll a unit-quantity of the two different products on the first stand, t_1, t_2 - idem on the second stand. The quantitative relation of the two kinds of products ensuring a uniform output on both mills is

$$\frac{C_1}{C_2} = \frac{t_2 - T_2}{T_1 - t_1} \quad (2)$$

For three mills, when one of them works for the other two, the expedient load will be determined by:

$$C_1 T_1 + C_2 T_2 = C_1 t_1 = C_2 \tau_2 \quad (3)$$

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where τ_2 - time it takes to roll a product unit on the third mill. The amount of "transit" metal is determined by the production ratio of furnace F (t/h) and of mill 900, when rolling metal coming from the furnace F_1 and the "transit"-furnace F_2. The quantity of metal rolled on mill 900 as intermediate product in one hour amounts to

$$K_t = \left(1-\frac{F}{F_1}\right) F_2 \qquad (4)$$

Mill 1500 has at the same time to roll K_t amount of metal to be passed on to mill 900 as "transit" product, while during the remaining time tubes can be rolled in a quantity corresponding to the capacity of the heating furnaces, as well as slabs for the general workshops. The relation between the various metal flows was determined from the metal-consumption coefficient for the blooming mill and its average output. It was found that the efficiency ratio of the mills did not tally with the ratio of their operational time. The productivity of mill 1500 on which two ingots can be rolled at a time, was higher than that of mill 900. However, the low output of pit furnaces creates the bottleneck in the production process. Their capacity can be raised by increasing the temperature of ingots during feeding, by reducing

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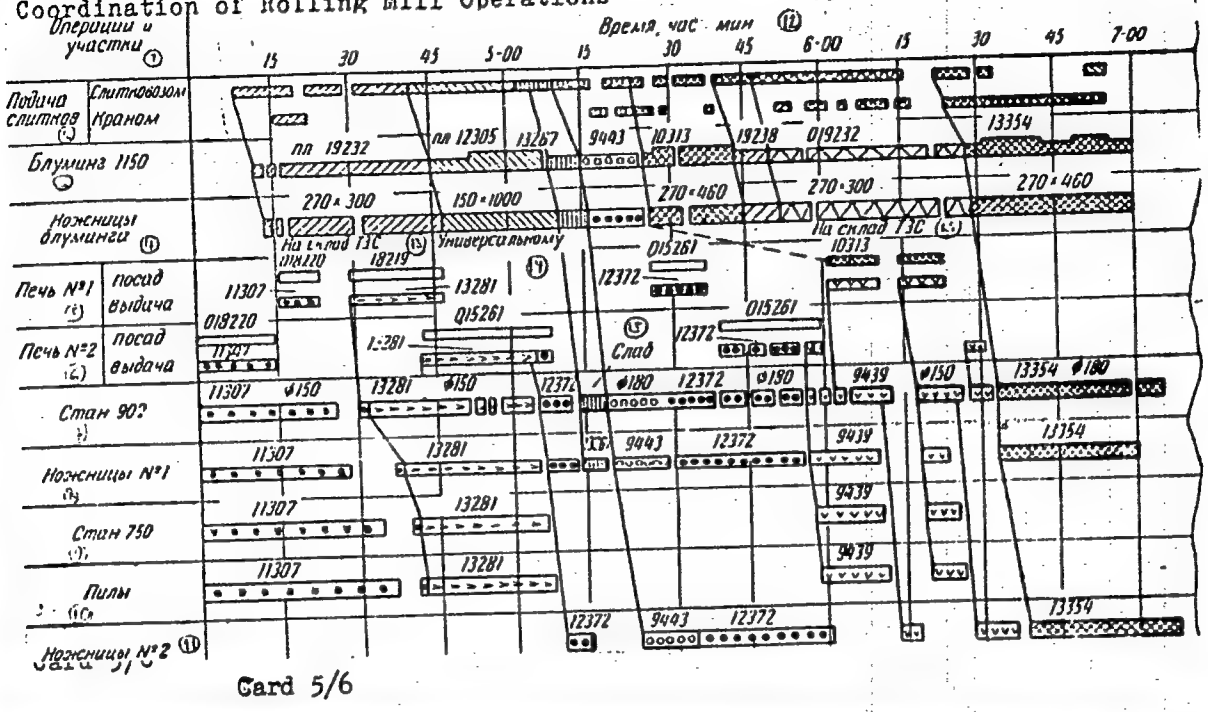
Coordination of Rolling Mill Operations

the time of cold feeding, eliminating idle time and not retain metal in them any longer than necessary, moreover, by intensifying the heating of ingots and increasing the number of travelling cranes. By drawing up a detailed operation-schedule for the mills in question, according to the investigations and calculations carried out, the mills are now utilized more fully and the savings effected by the 1500 and tube rolling mills - only with regard to permanent costs - amount to about 500,000 rubles per annum. There are 2 figures and 3 tables.

ASSOCIATIONS: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute) and zavod im.Dzherzhinskogo (Plant im.Dzherzhinskiy)

S/133/61/000/002/004/014
A054/A033

Coordination of Rolling Mill Operations



Card 5/6

S/133/61/000/002/004/014
A054/A033

Coordination of Rolling Mill Operations

Part of the simplified graph of the operations in the new rolling shop (the enlarged marks for 1150 indicate that 2 slabs are rolled in this mill simultaneously); the figures indicate the number of heats and the dimensions of the strip after rolling;

Operation and place of operation ① — Time, hour, minutes ⑰

Feed of ingots - by crane ②
Blooming 1150 ③
Shears of the blooming mill ④ — to the store of tube rolling mill ⑬ — to universal ⑭
Furnace No.1 — feed ⑤ / output
Furnace No.2 — feed ⑥ / output ⑦ ⑧ ⑨ ⑫ slab
⑩ Mill 900; Shears No.1; Mill 750; Saws; Shears No.2. ⑮

Card 6/6

MOLOTKOV, L.F.; YUFEROV, V.M.; KRYZHANOVSKIY, A.L.; SHAFRAN, I.K.; BORTUNOV, Ye.M.; SOROCHAN, N.G.; MADZHAR, N.I.; VOROB'YEV, A.F.

Investigating pressures during the rolling of universal strips. Izv.vys.ucheb.zav.; chern.met. 5 no.4:76-81 '62. (MIRA 15:5)

1. Dneprodzerzhinskiy metallurgicheskiy institut i Zavod im. F.E.Dzerzhinskogo.
(Rolling (Metalwork)) (Pressure)

SHIFRIN, L.S.; SHAMETS, Ya.Ye.; RAKOVSKIY, I.A.; SHESTAK, [illegible]; MASLOV, K.S.

Reconstruction of the 1,150 blooming mill drives at the Dzerzhinskiy Metallurgical Plant. Stal' 24 no.5:432-433 My '64. (MCRA 17:12)

1. Dneprovskiy metallurgicheskiy zavod im. Dzerzhinskogo.

T-9

POLAND/Human and Animal Physiology - Endocrine Glands.

Abs Jour : Ref Zhur - Biol., No 7, 1958, 32107

Author : Shafran Leslaw
Inst : -
Title : Influence of Cortisone on Estrus Heat.

Orig Pub : Patol. polska, 1956, 7, No 4, 337-340.

Abstract : Twenty ♂ of cortisone per day were introduced to mice ♀ for 15 days. The character of estrus heat did not change. General length of cycle 5-9 days (average 6.9 days), stage of estrus heat 2-4 days (average 3.1 days).

Card 1/1

SAVITSKIY, [illegible] [Savyts'kyi, I.V.]; ZARETSKAYA, I.V. [Zarets'ka, I.V.]; [illegible] A.I. [Ratsenko, O.F.]; SHAFRAN, L.M.

[illegible] on proteolytic and proteolytic activity of the blood in the [illegible] of adapting the organism of seamen to the conditions [illegible] sailing. Ukr. biokhim. zhur. 37 no.4:501-509 (MIRA 18:9)

1. Kafedra [illegible] Odesskogo meditsinskogo instituta i [illegible] (Odessa).

L 10976-66 EWT(1)/EWA(j)/EWA(b)-2 JK

ACC NR: AP5028391 SOURCE CODE: UR/0016/65/000/009/0021/0024

AUTHOR: Yatsenko, A. F.; Korobov, L. I.; Shafran, L. M.

ORG: Basin Sanitation and Epidemiological Station of the Black Sea-Azov Sea Maritime Health Department, Odessa (Basseynovaya sanepidstantsiya Chernomorsko-Azovskogo vodzdravotdela)

TITLE: Smallpox immunity in sailors

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 9, 1965, 21-24

TOPIC TAGS: infective disease, disease incidence, epidemiology

ABSTRACT: The authors studied the state of smallpox immunity of Soviet sailors and compared it with the immunity of sailors of other countries of Europe, Asia, and Africa. As a result of the investigation, the authors establish that the percent of those reacting positively to inoculation varies in relation to the number of revaccinations in the past, the age of the person inoculated, and the individual reactivity of the person. Appreciable differences were noted between the number of positive reactions in Soviet and foreign sailors: 26% of the Soviet sailors had a positive reaction, 73.2% of the European sailors, and 61.9% of the Asian and African sailors. The percent of those who had a positive reaction in the 30 to 50-year-old age group was much higher (17 — 35% among Soviet sailors and 60 — 70% among foreign sailors) than those aged 20 — 30 years. The author concludes that great care should be

UDC:616.912-097.3-057:656.61

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L 10976-66
ACC NR: AP5028391

taken to prevent the importation of smallpox into the USSR by the crew and passengers of foreign vessels. Orig. art. has: 1 table

SUB CODE: 06 / SUBM DATE: 30Apr64 / ORIG REF: 009

Card 2/2

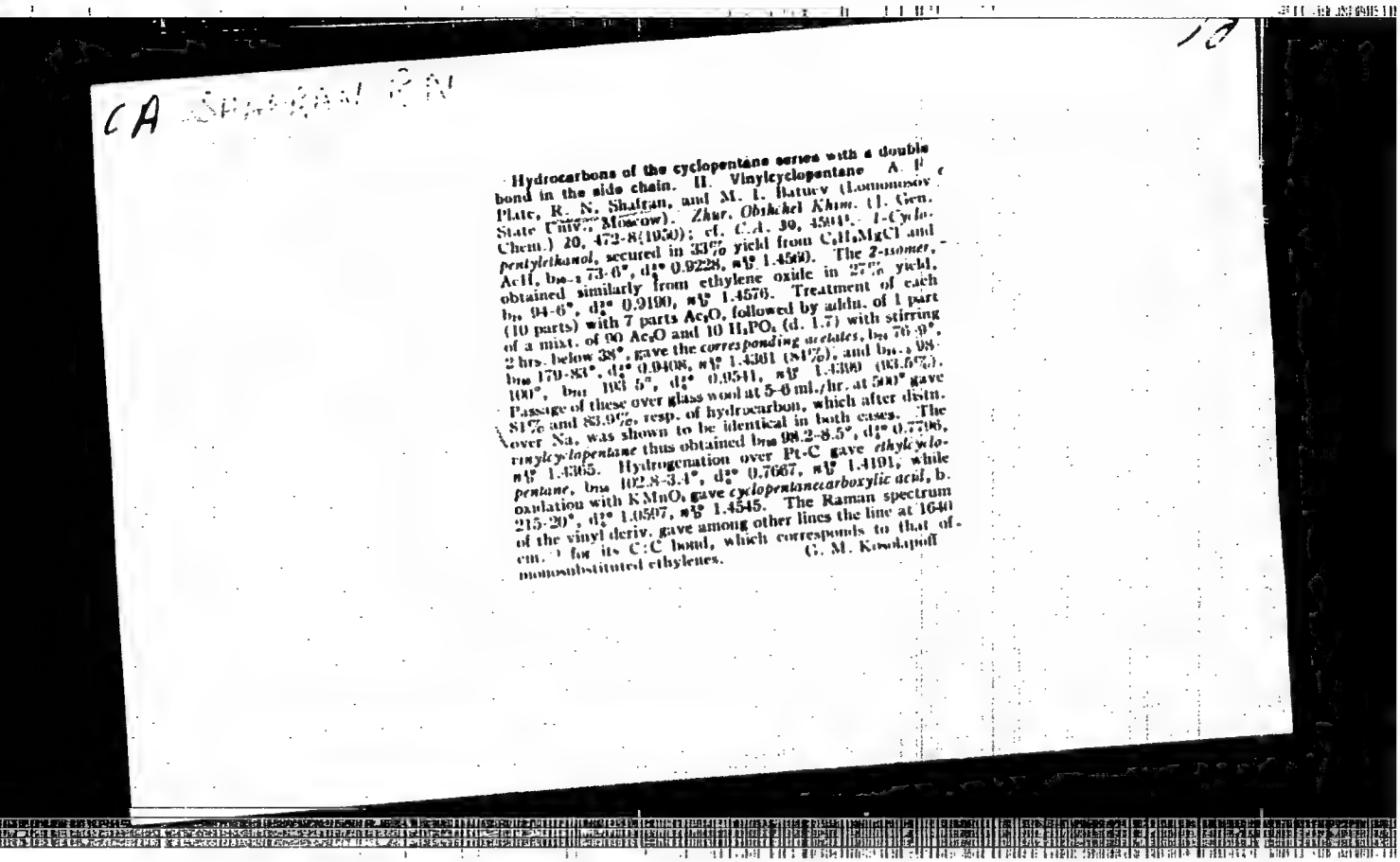
SHAFRAN, L.Ye.; GORDON, G.M.

Characteristics of dusts obtained during the roasting of mercury ores in a fluidized bed. Sbor. nauch. trud. Gintsvetmeta no.19:592-594 '62. (MIRA 16:7)

(Mercury ores) (Fly ash)

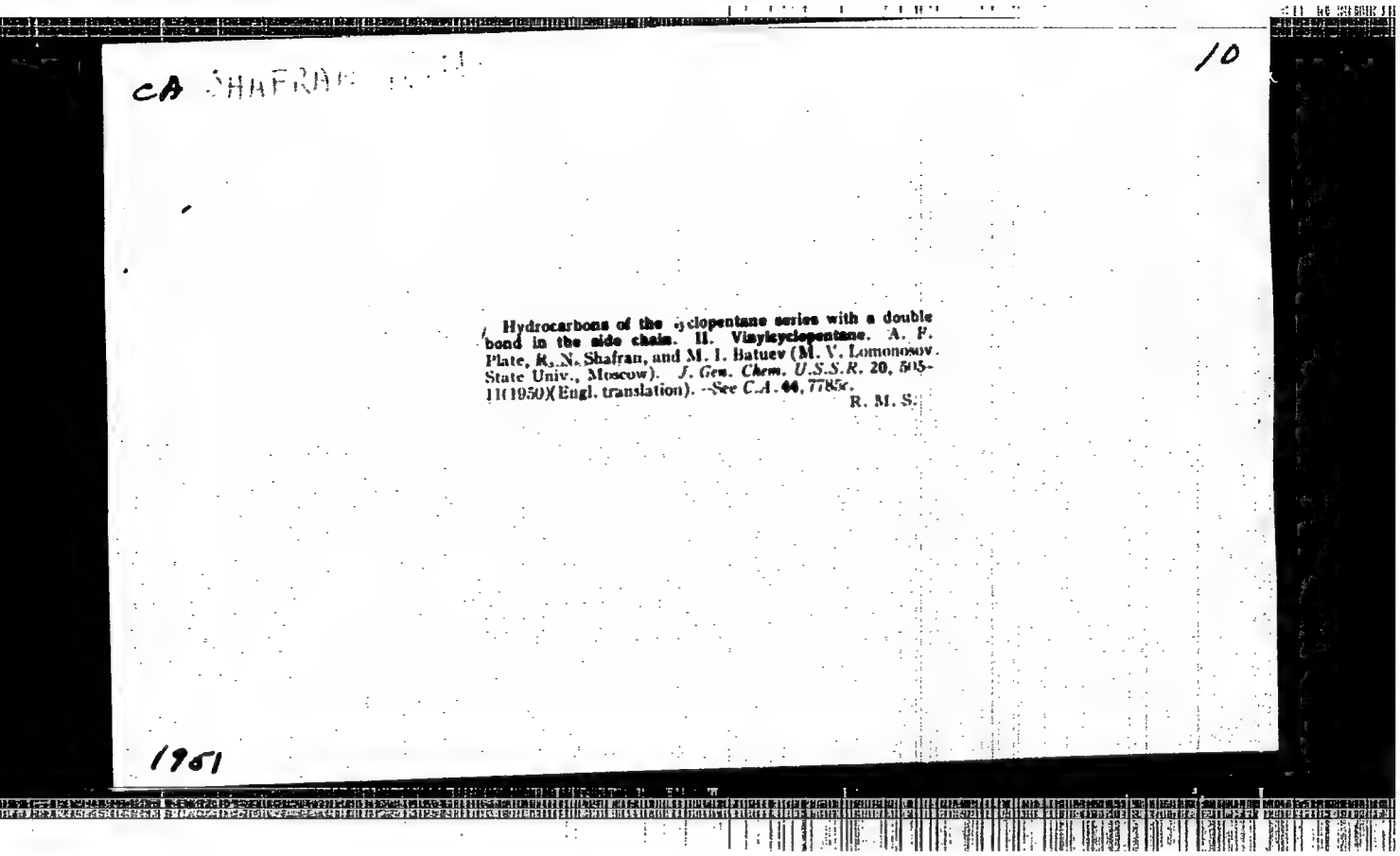
SHAFRAN, L.Ye.

Physicochemical characteristics of dusts produced during the roasting of mercury ores in a fluidized bed. Sbor. nauch. trud. Gintsvetmeta no.20:116-120 '63. (MIRA 17:12)



CA

Hydrocarbons of the cyclopentane series with a double bond in the side chain. II. Vinylcyclopentane A. D. Petrov, R. N. Shafran, and M. I. Batuev (Lomonosov State Univ., Moscow). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 472-8(1950); cf. C.A. 39, 4504⁸. *1-Cyclopentylethanol*, secured in 33% yield from C_5H_9MgCl and AcH, bp. 173-6°, d_4^{20} 0.9228, n_D^{20} 1.4569). The *2-isomer*, obtained similarly from ethylene oxide in 27% yield, bp. 94-6°, d_4^{20} 0.9190, n_D^{20} 1.4576. Treatment of each (10 parts) with 7 parts Ac_2O, followed by addn. of 1 part of a mixt. of 90 Ac_2O and 10 H_3PO_4 (d. 1.7) with stirring 2 hrs. below 38°, gave the *corresponding acetates*, bp. 76-9°, bp. 179-81°, d_4^{20} 0.9408, n_D^{20} 1.4301 (84%), and bp. 98-100°, bp. 168-5°, d_4^{20} 0.9541, n_D^{20} 1.4300 (83.6%). Passage of these over glass wool at 5-6 ml./hr. at 500° gave 81% and 83.9% resp. of hydrocarbon, which after distn. over Na, was shown to be identical in both cases. The *vinylcyclopentane* thus obtained bp. 98.2-8.5°, d_4^{20} 0.7706, n_D^{20} 1.4365. Hydrogenation over Pt-C gave *ethylcyclopentane*, bp. 102.8-3.4°, d_4^{20} 0.7667, n_D^{20} 1.4101, while oxidation with $KMnO_4$ gave *cyclopentanecarboxylic acid*, b. 215-20°, d_4^{20} 1.0507, n_D^{20} 1.4545. The Raman spectrum of the vinyl deriv. gave among other lines the line at 1640 cm.⁻¹ for its C:C bond, which corresponds to that of monosubstituted ethylenes. G. M. Kosolapoff



CA SHAFRAN

10

Hydrocarbons of the cyclopentane series with a double bond in the side chain. II. Vinylcyclopentane. A. F. Plate, R. N. Shafran, and M. I. Batuev (M. V. Lomonosov State Univ., Moscow). *J. Gen. Chem. U.S.S.R.* 20, 505-11(1950)(Engl. translation). --See *C.A.* 44, 7785c.
R. M. S.

1951

33584
S/204/61/001/005/002/008
E075/E484

11.0132

AUTHORS: Nazarova, N.M., Freydlin, L.Kh, Shafran, R.N., Litvin, Ye.F.

TITLE: Thermal alkylation of methylcyclohexane with olefins under pressure

PERIODICAL: Neftekhimiya, v.1, no.5, 1961, 613-618

TEXT: The authors reported recently that alkylation of cyclohexane and cyclopentane can be achieved thermally (350 to 450°C) under pressure (50 to 200 atm). Further work on alkylation of methylcyclohexane with olefins was carried out to elucidate the influence of side chains on the direction and ease with which the reaction proceeds. The reaction was carried out in a reactor filled with quartz rings. Molar ratios of methylcyclohexane to ethylene were from 2.5 to 3.6 and for propylene 1.4 to 3.2. The space velocity varied between 0.81 and 0.99 litre/hour for ethylene and 0.52 to 1.43 litre/hour for propylene. All experiments with propylene were carried out at 450°C, whereas for ethylene the temperatures varied from 350 to 450°C. Results show that the main product of the reaction of methylcyclohexane with

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Thermal alkylation ...

ethylene is a mixture of methylethylcyclohexanes, the proportions of various isomers differing from their equilibrium concentrations. With propylene the reaction proceeds with more difficulty and the yield of alkylate is lower than that obtained for ethylene (155% of propylene taken and 316% of ethylene respectively). Comparison with previous work (Ref.7: N.M.Nazarova, L.Kh.Freydlin. Dokl. AN SSSR, 137, 1961, 1125) shows that the alkylation of methylcyclohexane proceeds more easily than that of unsubstituted cyclohexane. The reaction begins at a lower temperature (350°C) and pressure (50 atm). The expected formation during the reaction of 1-methyl-1-ethylcyclohexane was not observed, which is explained by thermal instability of hydrocarbons with quaternary carbon atoms. It is postulated that 1,3 and 1,4-isomers are formed by an internal rearrangement of 1,1-isomer or via an intermediate stage of migration of free valency of methylcyclohexyl radical from position 1,1 to positions 1,3 and 1,4. Acknowledgments are expressed to A.L.Liberman and T.V.Vasina for supplying the methylethylcyclohexane samples. Yu.G.Mamedaliyev, Aladdin Kuliyev and Z.A.Mamedova are mentioned in the article in connection with

their contributions in this field. There are 2 figures, 5 tables and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The four references to English language publications read as follows:
Ref.2: V.J.Komarowsky. J. Amer. Chem. Soc., no.59, 1937, 2715;
Ref.3: H.Pines, W.Ipatieff. J. Amer. Chem. Soc., v.67, 1945, 1631;
Ref.4: A.Schneider. J. Amer. Chem. Soc., v.76, 1954, 4938;
Ref.9: H.D.Orloff. Chem. Rev., no.54, 1954, 347.

ASSOCIATION: Institut organicheskoy khimii AN SSSR
im. N.D.Zelinskogo (Institute of Organic Chemistry
AS USSR imeni N.D.Zelinskiy)

SUBMITTED: August 7, 1961

FREYDLIN, L.Kh.; LITVIN, Ye.F.; SHAFRAN, R.N.

Liquid phase hydrogeration and irreversible catalysis of cyclohexene on a skeletal nickel catalyst. Izv. AN SSSR. Ser. khim. no.8:1407-1411 Ag '64. (MIRA 17:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

NEYEDOV, O.M.; SHAFRAN, R.N.

Comparative study of various methods of preparation of dichlorocarbene. Izv. AN SSSR. Ser. khim. no.3:538-541 '65. (MIRA 18:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

[illegible], Yu.F.; [illegible], F.M.

[illegible] isoprene and 2,3-dimethylbutadiene-1,3 on a skeleton cobalt catalyst. Neftekhimiia 2 no.4:552-557 Jl-Ag (MIRA 17:10)

[illegible].

[illegible] Khimii im. N.D. Zelinskogo AN SSSR.

FREYDLIN, L.Kh.; LITVIN, Ye.F.; SHARAN, K.N.

Hydrogenation of dienes with a system of conjugate double bonds on a skeleton Co-catalyst. Neftekhimiia 4 no.5:669-675 S-O '64.
(MIRA 18:1)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.

NAZAROVA, N.M.; FREYDLIN, L.Kh.; SHAFRAN, R.N.; LOGINOV, G.A.

Alkylation of cyclohexene by ethylene at elevated temperatures and pressures. Neftekhimiia 3 no.1:66-70 Ja-F '63. (MIRA 16:2)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.
(Cyclohexene) (Ethylene) (Alkylation)

SHAFRAN, V.; ZUBAREVA, T., inzh.

Colossal plans. Za bezop.dvizh. 4 no.2:3-5 F '62. (MIRA 15:5)

1. Glavnyy inzh. inzhenerno-transportnoy masterskoy Instituta Genplana Moskvy (for Shafran).
(Moscow--Traffic engineering)

SHAFRAN, V.

In 1963. Za bezop.dvizh. 5 no.1:1-2 Ja '63. (MIRA 16:5)

1. Glavnyy inzh. inzhenerno-transportnoy masterskoy Instituta Genplana g. Moskvy.

(Mowcow--Traffic engineering)

SHAFRAN, V.I.

Opyt ozeleneniia Leningrada (Leningrad's experience in landscape architecture). Moskva, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1953. 155 p.

SO: Monthly List of Russian Accessions, Vol 7, No. 8, Nov. 1954

LAVTSBERG, Yuliy Saulovich; RUCHEVSKIY, Petr Vyacheslavovich; NAKHIMOV, Boris Naumovich; SHAFRAN, V.I., red.

[Lines for the regulation of traffic on city streets] Linii regulirovaniia dvizheniia na gorodskikh ulitsakh. Moskva, Stroiizdat, 1964. 77 p. (MIRA 17:9)

MATVEYEV, S.M., arkhitektor; STRAVINSKAYA, G.A., inzh.-ekonomist; SEGEDINOV, A.A., inzh.; SHAFRAN, V.L., inzh.; TROFIMOV, V.G., zhurnalist; YEVSTRATOV, N.F., nauchnyy red.; MYASOYEDOV, B., red.; SHLYK, M., tekhn. red.

[The new boundaries of Moscow] Moskva v novykh granitsakh. Moskva, Mosk. rabochii, 1962. 151 p. (MIRA 15:7)

1. Institut general'nogo plana g. Moskvy (for Matveyev, Stravinskaya, Segedinov, Shafran Trofimov)
(Moscow--Guidebooks)

DUBROVIN, Yevgeniy Nikolayevich; TURCHIKHIN, Emmanuil Yakovlevich; SHAFRAN, Vladimir Leont'yevich; SAMOYLOV, D.S., red.; ISEYEVA, R.Kh., red.izd-va; KHENOKH, F.M., tekhn. red.

[City vehicular and pedestrian crossings at various levels] Gorodskie transportnye i peshekhodnye peresecheniia v raznykh urovniakh. Moskva, Izd-vo MKKh RSFSR, 1963. 131 p. (MIRA 17:2)

BOGATSKIY, V.I.; IVANOV, A.V.; SHAFRAN, Ye.B.

Oil and gas occurrences in terrigenous sediments of the Visé stage in the middle Pechora Valley. Neftegaz.geol. i geofiz. no.7:6-11 '65. (MIRA 18:8)

1. Ukhtinskaya tematicheskaya ekspeditsiya.

GANDIN, L.S.; PYATYGINA,K.V.; ONIKUL, R.I.; TITOV, V.M.; SHAFRAN, Z.M.

Diurnal march of temperature in the lower atmospheric layers.
Trudy GGO no.76:3-29 '58. (MIRA 11:11)
(Atmospheric temperature)

S/081/62/000/017/073/102
B156/B186

AUTHOR: Shafranek, Karel

TITLE: Desulfurization of petroleum and reduction in the viscosity of fuel oil

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1962, 473, abstract 17M166 (Chekhosl. tyazhelaya prom-st', no. 2, 1962, 12 - 17)

TEXT: Certain trends in the technology for refining heavy sulfurous petroleums are discussed. The results of experimental work on Karashuk (Syria) petroleum are given. [Abstracter's note: Complete translation.]

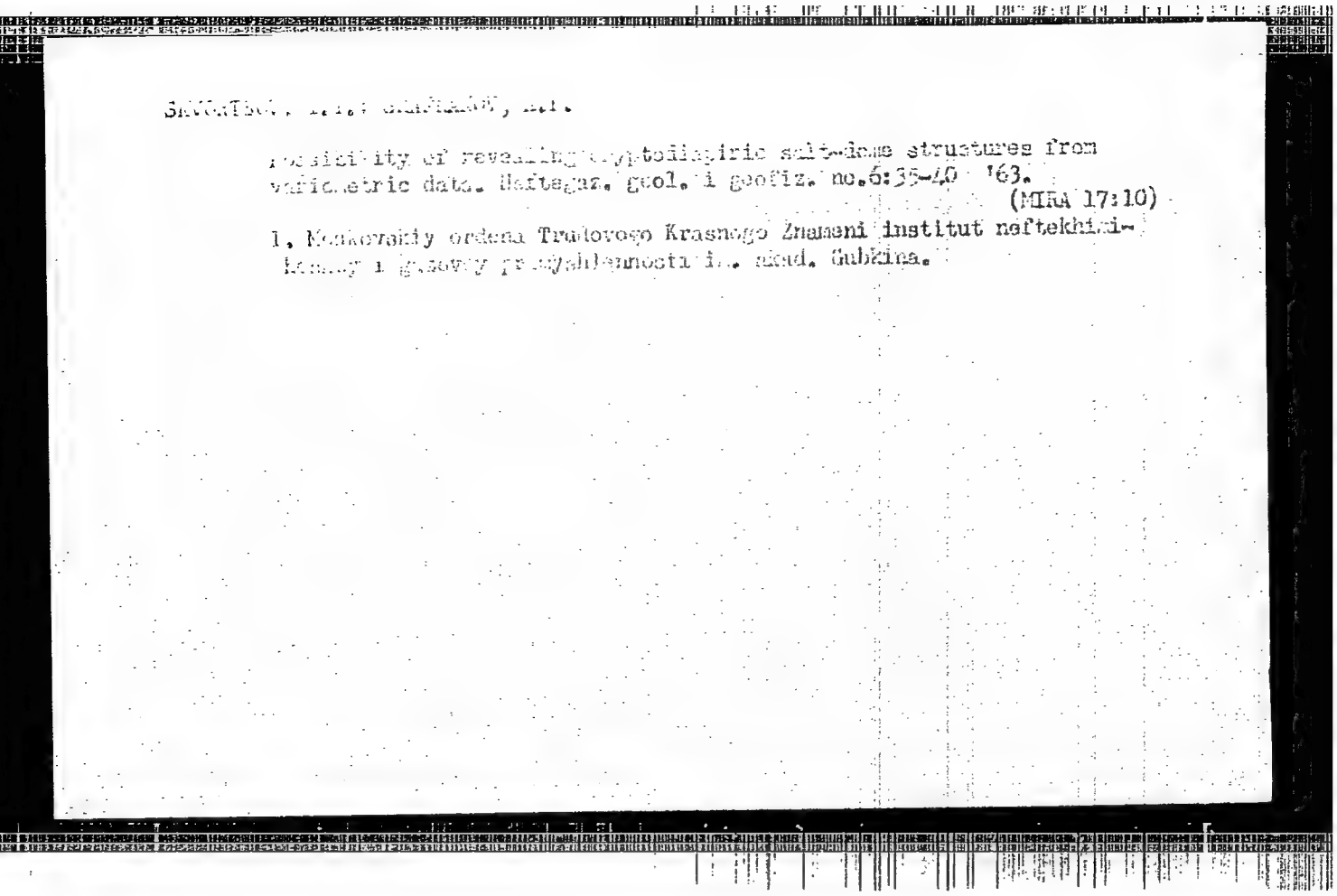
Card 1/1

SHAFRANOV, A. A.

VLASOV, V.V., podpolkovnik meditsinskoy sluzhby; LIPSKIY, Ya.I., podpolkovnik meditsinskoy sluzhby; SHAFRANOV, A.A., podpolkovnik meditsinskoy sluzhby

Some aspects of surgical procedures in burns associated with open fractures; experimental observations. Voen.-med.zhur. no.8:20-25 Ag '57. (MIRA 10:12)

(BURNS, experimental,
with open fract., surg. (Rus))
(FRACTURES, experimental,
with burns, surg. (Rus))



[illegible], A. A. [illegible], kand.

Possibility of revealing [illegible]-tolliptic salt-dome structures from gravimetric data. Neftegaz. geol. i geofiz. no.6:35-40 '63. (MIRA 17:10)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. Gubkina.

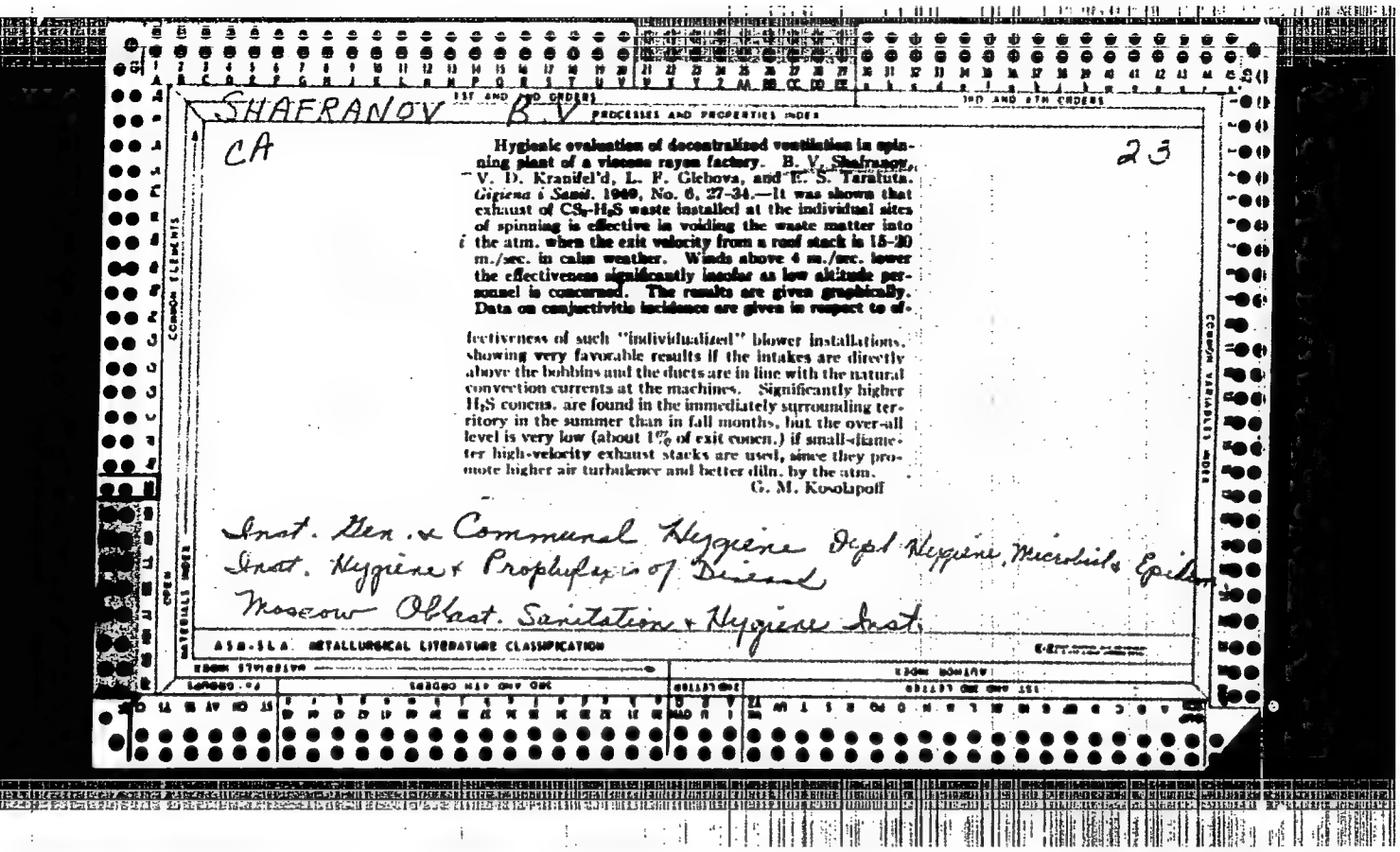
SHAFRANOV, A.P.; SKVORTSOV, I.I.

Types of cryptodiapiric salt-dome structures in the Caspian Lowland and their morphological features. Neftegaz. geol. i geofiz. no. 12:14-19 '63. (MIRA 17:5)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M.Gubkina.

SHAFRANOV, A.P.

Structural features of salt-dome structures in the central part of the Volga-Ural interfluve. Trudy MINKHiGP no.43:192-201 '63.
(MIRA 17:4)



SHAFRANOV B V

CA

23

Hygienic evaluation of decentralized ventilation in spinning plant of a viscose rayon factory. B. V. Shafranov, V. D. Kranifel'd, L. F. Glebova, and E. S. Tarakuta. *Gigiena i Sanit.* 1960, No. 6, 27-34.—It was shown that exhaust of CS_2-H_2S waste installed at the individual sites of spinning is effective in voiding the waste matter into the atm. when the exit velocity from a roof stack is 15-20 m./sec. in calm weather. Winds above 4 m./sec. lower the effectiveness significantly insofar as low altitude personnel is concerned. The results are given graphically. Data on conjunctivitis incidence are given in respect to effectiveness of such "individualized" blower installations, showing very favorable results if the intakes are directly above the bobbins and the ducts are in line with the natural convection currents at the machines. Significantly higher H_2S concns. are found in the immediately surrounding territory in the summer than in fall months, but the over-all level is very low (about 1% of exit concn.) if small-diameter high-velocity exhaust stacks are used, since they promote higher air turbulence and better diln. by the atm.

G. M. Kosolapoff

Inst. Gen. & Communal Hygiene Dept Hygiene, Microbiol & Epid
Inst. Hygiene & Prophylaxis of Diesel
Moscow Oblast. Sanitation & Hygiene Inst.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHAFRANOV, B.V., kand.med.nauk

Discussion in "Svetotekhnika" on the artificial lighting of industrial buildings with natural light. Gig. i san. 26 no.11: 84-87 N '61. (MIRA 14:11)

(FACTORIES--LIGHTING)

DANTSIG, N.M., prof.; SHAFRANOV, B.V., kand.med.nauk

Review of S.M.Chubinskii's book "Sun rays and their effect on the human organism." Svetotekhnika 7 no.3:27-28 Mr '61. (MIRA 14:8)

(Solar radiation--Physiological effects) (Chubinskii, S.M.)

SHAFRANOV, K.I.; PREOBRAZHENSKIY, A.Yu, redaktor; KRASHENINNIKOV, N.F. tekhnicheskiy redaktor.

[Our work with the EM-301-5 multi-bucket excavator] Nasha rabota na mnogokogshovom ekskavatore EM-301-5. Stalingrad, Oblastnoe knigoizdatel'stvo, 1952. 19 p. (MLRA 8:8)
(Excavating machinery)

SOV/48-23-1-23/36

24(7)
AUTHORS: Matveyeva, Ye. N., Medvedev, M. N., Shafranov, M. D.

TITLE: Luminescence Spectra of αNPO and POPOP in Various Solvents (Spektry lyuminestsentsii αNPO i POPOP v razlichnykh rastvoritelyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 1, pp 108 - 111 (USSR)

ABSTRACT: The present paper gives the results of investigations concerning the yield and the spectra of plastic scintillators with αNPO and POPOP as basic activators and also as addition to the solutions of paraterphenyl in polystyrene, polyvinyl toluene, and poly-2,5-dimethyl styrene (αNPO= 2-(1-naphthyl)-5-phenyl-oxazole POPOP= 1,4-di-(5-phenyl-2-oxazolyl-benzene) .Measurements of spectra are carried out with a variation of the concentration of αNPO and POPOP, and with constant concentration and variation of the solvent. The different spectra with POPOP and αNPO are shown by a figure. The spectra are not influenced by the solvents. The addition of n-terphenyl increases the luminescence yield in comparison to samples containing αNPO

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and POPOP as basic activators. In accordance with existing conceptions (Refs 1,2) it is assumed that here an excitation energy transfer from the solvent to the luminescent impurity is concerned. The intermediate position of the excitation level of n-terphenyl compared with solvents and the impurity thus increases the possibility of transition of energy from the solvent to the impurity. There are 2 figures, 1 table, and 2 references, 1 of which is Soviet.

24,6100

S/056/60/038/02/17/061
B006/B011

AUTHORS: Van Gan-chan, Yan Gen-tsen, Bin Da-liao, Ivanov, V. G.,
Zaytsev, Yu. F., Kladnitskaya, Ye. I., Kulyukina, L. A.,
Pevzner, Dis. V., Nikitin, A. N., Ostroumov, G. A.,
Solov'yev, M. I., Sosnovskiy, A. P., Shafranov, M. D.

TITLE: Investigation of the Elastic Scattering of π^--Mesons With a Momentum of 6.8 Bev/c on Protons by Means of a Propane Bubble Chamber

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp 426-431

TEXT: For the purpose of making a contribution to the problem of proton structure, the authors investigated the scattering of negative 6.8-Bev/c pions on protons (wave length $\lambda = 0.112 \cdot 10^{-13}$cm) in a 24-liter propane bubble chamber placed in a magnetic field of 13,700 oe. The experimental setup is shown in Fig. 1. The momentum distribution of π^--mesons was determined from 112 photographed tracks, and is shown in Fig. 2. The mean momentum was (6.8±0.6) Bev/c. A total of 3500 frames was interpreted, and

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596 events were selected from all two-pronged stars. The assumed values were processed by an electronic computer. The root-mean-square error in the angular determination was $\Delta\theta_1 = 26'$ and $\Delta\theta_2 = 1°14'$. The correction for track curvature did not exceed 20'. The elastic π^--scattering events were identified by the criteria discussed here: Coplanarity (Fig. 3); angular correlation (Fig. 4); recoil proton range. Among the 550 events investigated, 218 were regarded as being elastic. Fig. 5 shows the distribution of these 218 events along the chamber axis. In the so-called effective region of the chamber (43 cm with a total length of 55 cm), 213 out of the 218 events were recorded. The distribution of these 213 events according to the azimuthal angle of the recoil proton is shown in Fig. 6. In 113 cases the recoil proton track was on top, in 100 it was below. In 115 at the left, in 98 at the right. An estimation of the percentage of quasielastic scattering events in the total number of elastic ones 6%. The cross section of the reaction investigated was found to be

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$\sigma_{el}(\theta' > 6°) = 3.75 \pm 0.55$ mb, by taking into account a π^- admixture of (5±2)% with a total π^- track length of $1.15 \cdot 10^6$ cm. θ' is the scattering angle in the center-of-mass system. The total π^p-interaction cross section was estimated as being (30±5) mb. The final part of the present paper offers an analysis of experimental results on the basis of the optical model, with the proton being regarded as a homogeneous, sharply bounded sphere with a radius $R = 1.05 \cdot 10^{-13}$cm. The nucleonic absorption coefficient K is assumed to be $K = 0.71 \cdot 10^{13}$ cm^{-1}. Results are compared with those yielded by experiments (Table, Figs. 7,8). The authors finally thank Academician V. I. Veksler and I. V. Chuvilo for their discussions, M. A. Salmon, Ye. K. Kuryshkin, Ya. I. Malkov, M. A. Smirnov, L. Ye. Ivanova, and K. V. Rybina for their assistance. There are 8 figures, 1 table, and 8 references: 7 Soviet and 6 American.

Card 3/4

ASSOCIATION: Obyedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: August 29, 1959

VAN GAN-CHAN [Wang Kang-ch'ang]; VAN TSU-TSZEN [Wang TS'u-tšeng]; DIN DA-TSAO [Ting Ta-ts'ao]; IVANOV, V.G.; KATYSHEV, Yu.V.; KLADNITSKAYA, Ye.N., KULYUKINA, L.A.; NGUEN DIN TY; NIKITIN, A.V.; OTVINOVSKIY, S.Z.; SOLOV'YEV, M.I.; SOSNOVSKIY, R.; SHAFRANOV, M.D.

Investigating the elastic scattering of π^--mesons with momentum 6.8 Bev/c on protons in a propane bubble chamber. Zhur.eksp.i teor. fiz. 38 no.2:426-431 F '60. (MIRA 14:5)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons—Scattering)

ACCESSION NR: AR4046003 S/0058/64/000/007/A021/A021

SOURCE: Ref. zh. Fizika, Abs. 7A206

AUTHORS: Medvedev, M. N.; Shafranov, M. D.

TITLE: Use of film scintillators to extend the spectral sensitivity of photomultipliers and to record strongly ionizing radiation

CITED SOURCE: Sb. Stsintillyatory* i stsintillyats. materialy*. Khar'kov, Khar'kovsk. un-t, 1963, 187-190

TOPIC TAGS: thin film, ionization detector, scintillator, photomultiplier, coincidence counting

TRANSLATION: It is proposed to employ scintillating films deposited on a photocathode in order to extend the sensitivity of photomultipliers into the far ultraviolet region. The optimal film was found to contain 2% terphenyl plus 0.1% POPOP in polystyrene. The sensitivity of the cathode with the film, relative to the maximum sensitivity of the photocathode of the FEU-19M photomultiplier with-

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ACCESSION NR: AR4046003

out the film, amounts to 30% in the 320 nm region, 18--23% in 220 nm region, and 18--23% at 220 nm. The optimal film thickness is 0.1 nm. The de-excitation time is (2--3) x 10^{-9} sec. The use of a photomultiplier with a scintillating film in fast coincidence circuits greatly simplifies measurements of strongly ionized radiations in large gamma fields or in the presence of fast charged particles.
T. Razumova.

SUB CODE: NP ENCL: 00

Card 2/2

MATVEYEVA, Ye.N.; MEDVEDEV, M.N.; RUBINA, O.G.; SHAFRANOV, M.D.

Luminescence spectrum of pentaphenyl. Izv. AN SSSR. Ser. fiz. 27 no.6:763-764 Je '63. (MIRA 16:7)

1. Laboratoriya vysokikh energiy Ob"yedinennogo instituta yadernykh issledovaniy.

(Pentaphenyl--Spectra)

MATVEYEVA, Ye.N.; MEDVEDEV, M.N.; PISAREVA, M.G.; SHAFRANOV, M.D.

Luminescence of p-vinyl biphenyl. Izv. AN SSSR. Ser. fiz. 27 no.6:765-766 Je '63. (MIRA 16:7)

1. Laboratoriya vysokikh energiy Ob"yedinennogo instituta yadernykh issledovaniy.

(Biphenyl--Spectra)

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.; SHAFRANOV, M.D.

Polarization in pp-scattering at an energy of 8.5 Bev. Zhur. eksp. i teor. fiz. 45 no.4:1272-1275 O '63. (MIRA 16:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki i Ob"yedinennyy institut yadernykh issledovaniy.

L 25341-65 EWT(m) DIAAP
ACCESSION NR: AR4046131 S/0272/64/000/007/0162/0162

15
B

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'ny*y vy*pusk, 7.32.997

AUTHOR: Medvedev, M. N., Shafranov, M. D.

TITLE: Use of film scintillators to widen the spectral sensitivity of photomultipliers and the recording of strongly ionizing radiation 19

CITED SOURCE: Sb. Stsintillyatory* i stsintillyats. materialy*. Khar'kov, Khar'kovsk. un-t, 1963, 187-190

TOPIC TAGS: photomultiplier, film scintillator, photomultiplier spectral sensitivity, ionizing radiation counter

TRANSLATION: The article considers techniques for depositing scintillating films on photomultipliers with Sb-Cs cathodes. This renders the instrument sensitive in relation to distant ultraviolet areas of the spectrum (up to 1000-2000 A). Results are given for analyses of the spectral characteristics of photomultipliers and the authors indicate the possible use of these instruments as counters of strongly ionizing radiation.

SUB CODE: EM, OP ENCL: 00

Card 1/1

L 01294-66 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EWP(j) GG/RM

ACCESSION NR: AP5020813 UR/0048/65/029/008/1417/1418

AUTHOR: Matveyeva, Ye. N.; Medvedev, M. N.; Rubina, O. G.; Shafranov, M. D.

TITLE: Scintillation properties of polyphenyls. Report, 13th Conference on Luminescence held in Khar'kov 25 June to 1 July 1964

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 8, 1965, 1417-1418

TOPIC TAGS: luminescence, scintillation, solution property, gamma radiation, radiation detector, organic compound

ABSTRACT: The authors have measured the relative intensities of the scintillations initiated by Co^{60} gamma rays in solutions of polyphenyls in polystyrene, toluene and phenylcyclohexane. The polyphenyls investigated were: diphenyl, n-terphenyl, n,n'-quaterphenyl, and pentaphenyl. The scintillation intensity increased with concentration at low concentrations, but this effect reached a saturation; the maximum scintillation amplitude of diphenyl and terphenyl was reached at concentrations of 0.05 and 2%, respectively, and increasing the concentration even to 5% did not further increase the intensity. At concentrations up to 0.05% the scintillation intensity increased linearly with the number of phenyl

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L 01294-66

ACCESSION NR: AP5020813

rings in the molecule. The intensity of the scintillations was approximately the same in all three solvents. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: Laboratoriya vysokikh energiy Ob''yedinennogo instituta yadernykh issledovaniy (High Energy Laboratory, Joint Institute for Nuclear Research)

SUBMITTED: 00 ENCL: 00 SUB CODE: OP, NP

NO REF SOV: 002 OTHER: 000

Card 2/2

SOVETKIN, L. V., SHAFRANOV, N. I.

Coal Mines and Mining - Accounting

More about price lists and estimated costs. Ugol', 27, no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

SHAFRANOV, M.M.

"A Reversible Thread Cutting Friction Head" Stanki i Instrument, 10, No.8, 1939.

Report U-1505, 4 Oct 1951.

SHAFRONOV, M.M., Engineer

Mbr., Stankinprom (-1945-)

"Desighing Special Equipment for Operation Checking," Stanki I Instrument, 16, No. 6, 1945

BR-52059019

SHAFRANOV, M. P.

Machine Tools-Design

Metal economy by means of proper technological design. Stan. i instr. 24 no. 3 1953

9. **Monthly List of Russian Accessions**, Library of Congress, June 1953. Unclassified.

BEKETOV, A.K.; SHAFRANOV, N.K.

Use of cable vertical shaft guides. Shakht.stroi. no.12:4-6 '58. (MIRA 11:12)

1. Nachal'nik kombinata Rostovshakhtostroy (for Beketov). 2. Glavnyy inzhener kombinata Rostovshakhtostroy (for Shafranov).
(Shaft sinking)

SHAFRANOV, N.K.

Using the new UTK instead of the URP timber for horizontal and inclined workings. Shakht. stroi. 4 no.10:22-24 O '60.
(MIRA 13:11)

1. Glavnyy inzhener kombinata Rostovshakhtostroy.
(Mine timbering)

POLYAKOV, N.V.; SHAFRANOV, N.K.; KRAVCHENKO, V.I., kand.tekhn.nauk

"Blasting operations in mining" by E.O.Mindeli. Reviewed by N.V. Poliakov, N.K.Shafranov, V.I.Kravchenko. Ugol' 36 no.2:62-63 F '61. (MIRA 14:2)

1. Glavnyy inzhener kombinata Rostovugol' (for Polyakov). 2. Glavnyy inzhener kombinata Rostovshakhtostroy (for Shafranov). 3. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy ugol'nyy institut, g.Shakhty (for Kravchenko).

(Blasting)

(Mindeli, E.O.)

SNEGIREV, Yu.D.; VYAL'TSEV, M.M.; LUNOV, E.P.; SHAFRANOV, N.K.

Testing concretes for water permeability. Trudy NPI 113:47-60 '61. (MIRA 15:2)

(Concrete--Testing)

SHAFRANOV, N.K.

Repairing of the skip shaft lining in the "Severo-Gundrovskaya" Mine No.3. Ugol' 37 no.9:24-26 S '62. (MIRA 15:9)

1. Glavnyy inzh. kombinata Rostovshakhtostroy.
(Donets Basin--Mine hoisting)

SHAFRANOV, Nikolay Konstantinovich; SOCHNOVSKIY, M.I., kand. tekhn. nauk, retsenzent; CHECHKOV, L.V., ved. red.

[Improving mine shaft bottoms] Sovershenstvovanie okolostvol'nykh dvorov shakht. Moskva, Nedra, 1964. 133 p. (MIRA 18:1)

1. SHAFRANOV, P.

2. USSR (600)

4. Cotton Growing

7. Growing 108-F variety of large-boll cotton on the Zaporozh'ye State Cotton Farm, Khlopkovodstvo 3 no. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

SHAFRANOV, P.A.

Some biomorphological characteristics of the Indian lotus (Nelumbium nuciferum Gartn.) in connection with its introduction. Biul. Glav. bot. sada no.30:16-21 '58. (MIRA 11:6)

1.Astrakhanskiy gosudarstvennyy zapovednik.
(Lotus)

SHAFRANOV, S.K.

Questions for scientific workers. Tekst.prom. 14 no.2:57 F '54.
(MLRA 7:5)

1. Glavnyy inzhener Volokolamskoy fabriki im. Lenina. (Textile research)

ŠAFRANOV, V.D. ŠAFRANOV, V.D

CARD 1 / 2 PA - 1755

SUBJECT USSR / PHYSICS
AUTHOR ŠAFRANOV, V.D.
TITLE On the Stability of a Cylindrical Gaseous Conductor in a Magnetic Field.
PERIODICAL Atomnaja Energija, 1, fasc.5, 38-41 (1956)
Issued: 1 / 1957

The present work, which, like M.KRUSKAL and M.SCHWARZSCHILD, Proc.Roy.Soc. A 233, 348 (1954), employs the method of small oscillations, and which bases its assumptions on ideal conductivity, investigates stability against longitudinal disturbances in the case of the presence of a "longitudinal" field (i.e. in the case of the existence of components of the magnetic field which are directioned along the cylinder).
The system of equations upon which this problem is based consists of the equations of magnetic hydrodynamics for an ideally conductive medium: $d\varrho/dt + \varrho \operatorname{div} \vec{v} = 0$, $\partial \vec{H}/\partial t = \operatorname{curl} [\vec{v}\vec{H}]$, $p = \text{const}\, \varrho^{\Gamma}$, $\varrho\, d\vec{v}/dt = -\nabla p + (1/c)[\vec{j}\vec{H}]$. In the case of equilibrium it applies that $v = 0$, $\partial/\partial t = 0$; the cylinder is then homogeneous with respect to axis and azimuth ($\partial/\partial z = \partial/\partial\varphi = 0$), and the components H_z^o and H_φ^o are different from zero. Within the cylinder it is assumed that $H_{\varphi i}^o = 0$ and $H_{zi}^o = \text{const}$. (The indices i and e relate to the interior and exterior fields respectively. In this case density and pressure are constant with respect to cross section. Disturbances are here investi-

Atomnaja Energija, 1,fasc.5, 38-41 (1956) CARD 2 / 2 PA - 1755

gated (for reasons of simplicity) in LAGRANGIAN coordinates. In approximations which are linear with respect to disturbances the corrections to all quantities are proportional to shift: $\vec{H} = \vec{H}^{o} + \vec{H}^{(1)}(r)\, e^{i(kz+m\varphi+\omega t)}$ etc. Next, the equations resulting for these corrections are written down. The corrections to the field outside the cylinder are determined from the equations $\vec{H} = \nabla\Psi$, $\Delta\Psi = 0$. Because of the ideal conductivity the magnetic lines of force are withdrawn from the substance parallel to the surface. Therefore the normal component of the field is equal to zero, and the exterior field does not depend on the interior field. For its value on the surface of the exciting cylinder explicit expressions are given. The solution obtained for the corrections is correct in the case of a fully determined eigenvalue ω^2. At $\omega^2 > 0$ and $\omega^2 < 0$ equilibrium is steady or unsteady respectively. This eigenvalue is determined from the boundary condition (derived from the equation of motion). In the present case this is reduced to the condition $8\pi p = H_{\varphi e}^2 + H_{ze}^2 - H_{zi}^2$ to be satisfied on the surface of the cylinder. Next, this condition is to be transformed. Besides a positive spectrum of solutions, $\omega^2 > 0$ (which corresponds to the sound- and ALFVÉN waves of the gas in the excited cylinder), this equation also has a branch of eigen values $\omega_m^2(k)$, which has a negative sign within a certain domain. In the case of a vanishing longitudinal field this branch is about m=0 and m=1 quite in the negative domain, but if a longitudinal field exists, this branch passes into the positive domain in the case of great k. In conclusion some special cases are investigated.

INSTITUTION:

SHAFRANOV, V.D.

89-10-23/36

AUTHOR Shafranov, V. D.

TITLE On the Physics of Ionized Gases.
(O fizike ionizirovannykh gazov.)

PERIODICAL Atomnaya Energiya, 1957, Vol. 3, Nr 10, pp. 356-357 (USSR)

ABSTRACT The 3. International Conference on the physical phenomena in ionized gases took place from 11. to 15. June 1957 at Venice. The following were the most important papers:

Allen, England: The nonstability of the discharge in a toroid chamber at 0,5 - 22 torr and some thousands of amperes.

Allen, Reinolds, England: Speotroscopic temperature determination of electrons and ions in a ring discharge at a pressure of from 0,1 to 1,5 mm and 20 kA.

Hennings, Mails, England: Nonstability of toroid discharges in various chambers (ø 30 and 10 cm) at an argon pressure of from 10^{-2} to 10^{-3} torr.

Bikerton, England: Recording of the discharge characteristic at high flows in a longitudinal

CARD 1/3

On the Physics of Ionized Gases.

magnetic field.

Breton, Scharon, France: Discharge phenomena in linear and toroidal chambers.

Kolheit, Anderson, U.S.A.: Transmission of neutrons in a linear momentum discharge in deuterium. A condenser battery 25 hours at 0,5 μ F, 50 KV, 200 kA each served as an energy source. The neutrons were observed at the 2. and 3. change of inclination of the current curve. By means of scintillation counters it was proved that the neutrons from the domains near the discharge axis (of a diameter of not more than 2 cm) are formed simultaneously on the entire length of the tube.

A number of theoretical lectures dealt with the conditions of the non-stability of magnetically-hydrodynamic discharges (Rosenblut, Hain et al., Bernstein et al., U.S.A.)

CARD 2/3

On the Physics of Ionized Gases. 89-10-23/36

Sohlüter, D.D.R. investigated the possibility of heating up the plasma in a slowly changing magnetic field.
Eight participants from the U.S.S.R. were present.
There are 12 Slavic references.

ASSOCIATION: None given.
AVAILABLE: Library of Congress.

CARD 3/3

SHAFRANOV, V. D.

AUTHOR: SHAFRANOV,V.D. 56-6-23/56

TITLE: Structure of Shock Waves in a Plasma. (Struktura udarnoy volny v plazme, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 32, Nr 6, pp 1453-1459 (U.S.S.R.)

ABSTRACT: In consideration of the difference of electron- and ion temperature the structure of a shock wave in the plasma is dealt with theoretically. The following cases are investigated: a) A single shock wave, if the energy exchange between electrons and ions can be neglected, b) A steady shock wave in a strong magnetic field, c) A steady shock wave. (With 2 Tables, 3Illustrations, and 4 Slavic References).

ASSOCIATION: Academy of Science of the U.S.S.R.

PRESENTED BY:

SUBMITTED: 24.11.1956

AVAILABLE: Library of Congress

Card 1/1

SHAFRANOV, V.D

AUTHOR: Shafranov,V.D. 56-3-24/59

TITLE: Equilibrium of Magnetohydrodynamic Configurations. (O ravnovesnykh magnitogidrodinamicheskikh konfiguratsiyakh).

PERIODICAL: Zhurnal.Eksperim.i Teoret.Fiziki, 1957,Vol. 33,Nr 3,pp. 710-721 (USSR)

ABSTRACT: The conditions of the equilibrium of a closed system,which consists of a conducting gas and which is under the influence of a magnetic field, are investigated. Between these two equilibria can be established in a closed configuration: a) by gravitation, b) by external gas pressure, c) by the pressure of an external magnetic field.
In the chapters 1-3 the following cases are dealt with:
1) Gravitating current-carrying ring,
2) Current carrying ring which is situated in a gas atmosphere,the pressure of which is greater than the pressure within the ring
3) Current-carrying ring situated in an homogenous magnetic field.
Case 2 is of special interest because this system can probably be kept stable.
In chapter 4 the author shows that the configuration of equilibrium corresponds to a hydrodynamic rotor. By means of this analysis a spherical configuration of equilibrium is mentioned.
In chapter 5 an equation is deduced which puts the conditions for an axially-symmetrical configuration.
In the annex the stability-criteria of an ideally conducting cylin-

Card 1/2

der, the surface of which is current-carrying, is mentioned. There are 2 figures and 5 Slavic references.

ASSOCIATION: AN USSR.
(Akademiya nauk SSSR)
SUBMITTED: March 8, 1957
AVAILABLE Library of Congress.

SHAFRANOV, V.D.

56-3-59/59

AUTHOR: Shafranov, V.D.

TITLE: The Magnetic Vortex Rings (Magnito-vikhrevyye kol'tsa) (Letter to the Editor)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3 (9), pp. 831 - 832 (USSR)

ABSTRACT: S. Chandrasekhar (Proc. Nat. Acad. of Sci., 1956, Vol. 42, Nr 273) proved the steadiness of the most simple solution of the equation of the magnetic hydrodynamics of an incompressible perfectly conductive liquid, if the velocity of flow is connected with the magnetic field by the relation $\vec{v} = \vec{H}\sqrt{4\pi\rho}$, $p + \rho v^2/2 = \text{constant}$. This solution generalizes a solution which represents magnetohydrodynamical rings. A further generalization of all these solutions is obvious. The equations of the magnetical hydrodynamics of a perfect imcompressible liquid with infinite conductivity can be written down as follows: $\partial\vec{v}/\partial t = -\nabla(p/\rho + v^2/2) + \left[\vec{j}\vec{H}\right]/c - \left[\Omega\vec{v}\right]$

$\partial\vec{H}/t = \text{curl}\left[\vec{v}\vec{H}\right]$, $\text{curl}\,\vec{H} = (4\pi/c)\vec{j}$, $\text{curl}\,\vec{v} = \Omega$. The author here puts $\vec{v} = \alpha\vec{H}/\sqrt{4\pi\rho}$, where α is any arbitrary constant. $\Omega = (\alpha/c)\sqrt{4\pi/\rho}\,\vec{j}$ is then obtained and for the

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The Magnetic Vortex Rings

first equation - $\nabla (p + \rho v^2/2) + c^{-1} (1 - \alpha^2) \left[\vec{j}\,\vec{H}\right] = 0$. For the condition of equilibrium of the magnetohydrodynamical configuration curl $\left[\vec{j}\,\vec{H}\right] = 0$ is obtained herefrom, and curl $\left[\vec{v}\vec{\Omega}\right] = 0$ for the condition of the steady flow of an incompressible liquid. Thus, a steady flow of an incompressible perfectly conductive liquid with the magnetic field $\vec{H}$ corresponds to each equilibrium configuration or each steady flow of an incompressible liquid. An analogous formation (which may be described as a magnetic vortex ring) with identical distribution of the magnetic field and the velocity corresponds, for instance, to a ring-shaped current in a magnetic field and to a circularely-shaped vortex. At $\alpha = o$ the magnetical vortex ring changes into a magnetohydrodynamical configuration which in equilibrium is at rest, and at $\alpha = \infty$ it is transformed into an ordinary vortex ring. There are 5 references, 3 of which are Slavic.

ASSOCIATION: AN USSR (Akademiya nauk SSSR)
SUBMITTED: May 20, 1957
AVAILABLE: Library of Congress

SHAFRANOV, V.D.

21(7) PHASE I BOOK EXPLOITATION SOV/1242

Akademiya nauk SSSR. Institut atomnoy energii

Fizika plazmy i problema upravlyayemkh termoyadernykh reaktsiy, t. II. (Plasma Physics and the Problem of Controlled Thermonuclear Reactions, t. 2) [Moscow] Izd-vo AN SSSR, 1958. 355 p. 3,000 copies printed.

Resp. Ed.: Leontovich, M.A., Academician.

PURPOSE: This collection contains previously unpublished work of members of the Institut atomnoy energii (Institute of Atomic Energy) of the Academy of Sciences of the USSR. It is intended for scientists interested in this field.

COVERAGE: This book is the second of four volumes of previously unpublished work of members of the Institute of Atomic Energy during the period 1951-58. The exploitation cards on the other volumes in this series have been released under the numbers 1241,1243, and 1244.

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OSOVETS, S. M., SAGDEYEV, R. Z., TRUBNIKOV, B. A., SHAFRANOV, V. D., VOLKOV, T. F., RUDAKOV, L. I.

"Interaction Between Alternating Electromagnetic Fields and High-Temperature Plasma."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

AUTHOR: Shafranov, V. D. SOV/56-34-6-15/51

TITLE: The Propagation of an Electromagnetic Field in a Medium With Spatial Dispersion (Rasprostraneniye elektromagnitnogo polya v srede s prostranstvennoy dispersiyey)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 34, Nr 6, pp 1475 - 1489 (USSR)

ABSTRACT: This paper derives the general formulae for an electromagnetic field in a semi-infinite homogeneous anisotropic medium with spatial dispersion, it is a generalization of the second part of the well-known paper of Landau (Ref 1). The first part of this paper derives the general formulae which describe the permeation of longitudinal and transverse fields through the above mentioned medium; these formulae may be deduced from the corresponding boundary conditions. The author investigates a monochromatic field with a time dependence of the type $e^{-i\omega t}$. The field penetrates (coming from the vacuum) into a medium which fills up the semi-space $z>0$. The spatial dispersion implies a functional relation between the vector of the electrical induction $\vec{D}$

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and the electrical field strength: $D_\alpha(\vec{r}) = \int K_{\alpha\beta}(\vec{r},\vec{r}')E_\beta(\vec{r}')d\vec{r}'$.

If the spatial dispersion can be neglected (in a plasma this corresponds to the neglect of the thermal motion of the electrons) a local connection between $\vec{D}$ and $\vec{E}$ is obtained. In a semi-infinite medium the dependence of $\vec{r}$, $\vec{r}'$ is connected with the properties of the separating surface. The charges are assumed to be reflected from the boundary like by a mirror. In the general field the electro-magnetic field may be described by an integro-differential equation. Subsequently the author reports on the boundary conditions. The above mentioned integro-differential equation may be solved by expanding al. quantities into plane waves. The author then calculates the permeation of longitudinal and transverse fields. The second part of this paper calculates the propagation of a transverse electromagnetic field into a plasma along the magnetic field. For a given frequency ω the transverse electromagnetic field in a medium with spatial dispersion, generally speaking, cannot be described as a wave. For any

real case, the electromagnetic field has to be calculated with taking into account the boundary conditions. In a plasma, the field may be represented in the form of 2 parts: The phase velocity of one part of the field depends on the coordinate z and the other part of the field is an ordinary wave. The author thanks M.A.Leontovich, Member, Academy of Sciences, USSR, who proposed the problem and gave suggestions for this paper. There are 3 figures and 12 references, 12 of which are Soviet.

SUBMITTED: January 7, 1958

SHAYKHAMOV, V.D.

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24(2)/20 SOV/109-4-8-22/35
AUTHORS: Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and Sirotenko, I.G.

TITLE: Report on the Second All-Union Conference on Gas Electronics

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1359 - 1358 (USSR)

I.M. Podgornyy and N.G. Koval'skiy - "New Data on X-ray Radiation During Pulse Discharges".
V.A. Khrabrov and M.M. Sukhov-Zoya dealt with the investigation of the neutron radiation in powerful gas discharges in chambers with conducting walls.
M.A. Bazzhov et al. - "Investigation of the Gas Discharge in a Conical Chamber".
S.M. Osovets et al. - "A Turn of Plasma in Transverse Magnetic Field".
I.G. Kesayev "Data on the Division of a Cathode Spot on Mercury in a Low-pressure Arc" (see p 1289 of the Journal).
A.E. Robson (England) - "A New Theory of the Cathode Spot" (see p 1295 of the Journal).
L.M. Biryukova - "Positive Column in a Hydrogen Discharge With Stationary and Pulse Loads".
I.G. Matrashevich and A.I. Zhitnik - "Current Distribution on the Surface of Electrodes in Electric Pulse Discharges".
L.S. Kuz - "Some Properties of Gas Discharges in Low-Voltage Halogen Counters".
G.I. Glotova and V.L. Granovskiy - "Comparison of the Initial De-ionization in the Isotopes of Hydrogen (H and D)".
L.A. Akulinna communicated some results on the pre-breakdown current pulses at low pressures.
M.Ye. Vasil'yeva and A.A. Zaytsev - "Charge-density oscillation Waves in Cylindrical Plasma".
I. Pekárek of Czechoslovakia communicated some information on the wave-like phenomena in gas-discharge plasma.
B.G. Brezhnev dealt with the problem of the determination of the energy of fast ions in pulse discharges.
B.B. Kadomtsev - "Convection Instability of a Plasma String".
S.I. Braginskiy and V.D. Shafranov - "Theory of a High-temperature Plasma String".
The fifth section was presided over by N.A. Kaptsov and dealt with high-frequency currents in gases. The following papers were read:
V.Ye. Golant - "Formation of Ultra-high Frequency Pulse Discharges in Inert Gases".
G.I. Pateyuk - "Influence of the Boundary Conditions on the Formation and Maintenance of High-frequency Discharges".
P.S. Bulkin et al. - "Investigation of a Self-maintained Ultra-high Frequency Pulse Discharge and the Process of its Development".
G.M. Zastenker and G.S. Solntsev - "Some Results of the Investigation of the Formation of Low-pressure High-frequency Discharges".
G. Margenau (USA) - "Conductivity of Weakly Ionized Plasma".
A.A. Kuznetsov - "The Conditions of Transition From High-frequency Corona Discharge at Atmospheric Pressures".
V.Ye. Golant - "The relationship Between the Character-istics of the Ultra-high Frequency Current and the Direct Current in Gas Discharges".
B.B. Lagoriyar analysed the conductivity of the dist-egrating plasma in the window of a resonance discharge tube.
S.M. Levitskiy and L.P. Shashurin dealt with the applicability of the probe method to high-frequency discharges (see p 1338 of the Journal).
The paper by V. Ye. Mitnik et al. was devoted to the investigation of the ultra-high frequency plasma by means of the Stark effect.
G.S. Solntsev et al. dealt with the problem of electric fields in a high-frequency discharge at low pressures.
Ye. Badarau of Rumania read a paper entitled "High-frequency Discharge in Methane".
The work of the sixth section was devoted to the problems of plasma and its radiation; the section was presided over by V.A. Fabrikant. The following papers were read:
Yu.M. Kagan - "Probe Methods of Plasma Investigation".
V.I. Drozdov - "Oscillographic Measurements in Plasma".
V.A. Simonov and A.G. Nikeshkin - "Investigation of the Movement of Plasma by Means of a Mass Spectrometer of the Transit Time".
A.V. [illegible] - "[illegible] of the Oscillations on a [illegible] of Ga[illegible]

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SHAFRANOV, V.D.

Equilibrium of a ring-shaped plasma in a magnetic field. Zhur. eksp.i teor.fiz. 37 no.4:1088-1095 O '59. (MIRA 13:5)

(Plasma (Ionized gases)

SHAFRANOV, V.D.

82607

S/056/60/039/01/22/029
B006/B063

24.2120

AUTHORS: Sagdeyev, R. Z., Shafranov, V. D.

TITLE: Instability of a Plasma With an Anisotropic Distribution of Velocities in a Magnetic Field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 1(7), pp. 181-184

TEXT: The authors of the present paper study the instability of a plasma with a non-Maxwellian velocity distribution of ions (or electrons). The instability is assumed to have two causes: 1) the existence of a "beam"; 2) longitudinal or transverse "temperature" anisotropy with respect to the static magnetic field. The latter case is studied in this paper. Preceding papers (Refs. 1 and 2) have shown that a convective instability ($Re(\omega)\neq 0$) may occur in "drift" approximation with a sufficiently strong anisotropy of the ion (or electron) temperature. The "drift" approximation employed in these papers is, however, only applicable if the Larmor radius of all particles is very small compared to the perturbation wavelength, i.e., if the Larmor frequency is very high compared to the vibration frequency.

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Instability of a Plasma With an Anisotropic Distribution of Velocities in a Magnetic Field

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B006/B063

A transition to higher frequencies is accompanied by instabilities of the type of vibrations with increasing amplitude ($\mathrm{Re}(\omega) \neq 0$). Such a plasma, whose electrical properties are indicated by the tensor $\varepsilon_{\alpha,\beta}(\omega,\vec{k})$, is considered, and the occurrence of instabilities is separately studied for electronic and ionic oscillations. It is shown that a plasma located in a homogeneous magnetic field will also become unstable in the case of slight temperature anisotropy $|T_\perp - T_\parallel|/T \ll 1$. This instability is due to those charges in the tail of the velocity distribution which are in cyclotron resonance with the perturbation wave. Finally, the authors thank Academician M. A. Leontovich and B. B. Kadomtsev for their discussions. There are 1 figure and 4 Soviet references.

SUBMITTED: February 25, 1960

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SHAFRANOV, V.D.

Equilibrium of a toroidal plasma column in a magnetic field. (MIRA 15:12)
Atom.energ. 13 no.6:521-529 D '62.
(Plasma (Ionized gases)) (Magnetic fields)